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ABSTRACT

Evidence collected through comparison of compensatory education students' calendar year and school year gains implies that summer drop-off of basic skills is a common phenomenon. There are two possible interpretations of this finding. The first, "forgetting," assumes compensatory education students know less in the fall than they did the previous spring. The "no growth in summer" interpretation assumes that the students do know as much in the fall as in the previous spring. The results of the National Institute of Education's Instructional Dimensions Study provide strong evidence in favor of the "no growth in summer" model. Students whose initial test scores were at or above the national norms make substantial gains during the summer, but compensatory education students do not. Compensatory education programs are therefore doing some good and should be continued until effective alternatives can be found. Summer school programs might foster achievement gains during the summer months, but they do not attract many disadvantaged students and their programming is not focused on basic skills instruction. Public programs may be unable to overcome the problem of summer drop-off entirely. Further research into the summer drop-off phenomenon is needed to understand the limits of public policy and maximize the effectiveness of compensatory education programs. (Author/MK)

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# WHAT DO WE KNOW ABOUT TEACHING AND LEARNING IN URBAN SCHOOLS?

ED185162

Volume 7

## Summer Drop-Off and the Effectiveness Of Compensatory Instruction

Paul T. Hill
The Rand Corporation

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URBAN PROGRAM

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WHAT DO WE KNOW ABOUT TEACHING AND LEARNING IN URBAN SCHOOLS?

Volume 7

# Summer Drop-Off and the Effectiveness Of Compensatory Instruction

**Paul T. Hill**
**The Rand Corporation**

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held in St. Louis, Missouri, July 10-14, 1978.
Conducted by the Urban Education Program, CEMREL, Inc.,
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# Foreword

This monograph is one of a series of papers on the issues of instruction and learning in urban schools that were presented at a conference held July 10-14, 1978, in St. Louis, Missouri, sponsored by the Urban Education Program, CEMREL, Inc., and supported by the National Institute of Education. It is our hope that both the conference and the series of fourteen monographs that resulted from it will assist educational researchers and school practitioners in identifying and analyzing instructional and learning problems in urban school settings, and will contribute to the development of strategies for the improvement of schooling for students.

Titled "What Do We Know About Teaching and Learning in Urban Schools?", the 1978 conference focused on an examination of research findings on the teaching-learning process in areas most germaine to and under control of the schools. The key problems to which the papers are addressed are the assessment of learning outcomes and the analysis of the relationships between instructional and other inputs and learning outcomes. Important contextual issues not under the full control of schools, such as community and parental involvement and the impact of federal and state governments in improving educational opportunities, were addressed at the conference as well.

The conference was conceived, in part, as an initial step in the development of a state-of-the-art review of the most critical issues faced by educators in urban schools who struggle with the morass of general educational problems, exacerbated by decreasing public confidence in large city schools, declining student enrollment, and increasing numbers of poor and minority students. While the conference does not exhaust discussion of the problems

that are particularly significant in the urban school setting, it forms a convenient focus for viewing the larger issues affecting education in our cities.

The educational innovation and change growing out of more than ten years of effort since the passage of the Elementary and Secondary Education Act of 1965 -- the primary stimulus for federal support of research and development in education -- has had the least impact on the student populations typical of the urban school setting. With this concern as a primary consideration, ten months prior to convening the conference, CEMREL's Urban Education Program had begun work with a network of twenty big-city school districts and state departments of education in Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Ohio, Tennessee, and Wisconsin. Thus, the conference and the research findings of national authorities was undertaken to lay a foundation for future work in urban educational research and development and to undergird present efforts at improvement of schools in the region.

## The Conference Design

To guide the development of the presenters' preparation of their papers, topical questions were prepared for them by Urban Education Program Staff and a paper format was recommended. Each presenter prepared a full paper based on the topical questions and results were summarized by the writers during general sessions of the conference. Because of a wide range of perspectives held on the conference issues, discussions precipitated by reactor panels composed of other prominent researchers, practitioners, and community leaders in education followed each general conference session. More than one hundred educational researchers and practitioners from across the country attended the conference. The invited participants came from school districts and state departments of education from nineteen states; thirteen institutions of higher education; four federal agencies; numerous educational laboratories and research and development centers; and seven social service agencies.

The conference was divided into two types of sessions: general sessions, wherein the nationally recognized speakers who wrote papers presented their summaries; and forum sessions, wherein reactors helped analyze the presentations and examine the concrete recommendations put forth by the general-session speakers. All participants were encouraged to present questions and reactions during these forum sessions.

Francis S. Chase, Director of Urban Education Studies, Dallas, Texas, gave the keynote address at the opening session of the conference, a banquet on Monday evening, July 10. His topic, "Promising Developments in Urban Education," summarized field studies that he was conducting under sponsorship of the Council of Great Cities Schools and the University Council for Educational Administration under a grant from the Spencer Foundation. Chase is Professor Emeritus of the University of Chicago, where he also served as Chairman and Dean of Education for ten years.

## The Conference Topics

Each of the presenters had been asked to design a paper by responding to salient topical questions, drawn up by CEMREL's Urban Education Staff. The questions that were posed originally for each of the writers are presented below. Most of the resulting papers were developed into monographs for this series.

| | |
|---|---|
| Compensatory Education: A Congressional Perspective<br>Christopher T. Cross<br>Minority Staff Director<br>Committee on Education and Labor<br>U.S. House of Representatives. | What is the current state of the evidence concerning projected changes in legislative mandates, and what may we expect related to changes in policy governing federally funded compensatory education programs? |

| | |
|---|---|
| Effective Teacher-Support Systems to Improve Instructional Conditions in Schools<br>Joseph D. Liggins<br>Assistant Superintendent for Staff Development<br>Houston Independent School District | What teacher support systems are most effective in improving instructional conditions for students? What is the role of in-service training, and what types of in-service training can be recommended to urban educators? What other resources--such as additional curricular materials, support from teacher aides and volunteers, time re-allocations, team teaching arrangements, etc.--can be demonstrated to be effective in improving students' learning opportunities? What is the state of the evidence? |
| Assessment That Respects Complexity in Individuals and Programs<br>Judah L. Schwartz<br>Professor of Engineering, Science and Education<br>Massachusetts Institute of Technology | How can we best measure and analyze the effects of instruction on students' learning in the major school subjects: What are the most appropriate times and strategies for measuring the effects of schooling on student learning? What do we learn from means of assessment other than standardized achievement testing? When and under what circumstances is it most appropriate to use alternative or complementary strategies for assessing program effectiveness? |
| Achievement Tests in Urban Schools: New Numbers<br>Eva Baker<br>Director<br>Center for the Study of Evaluation<br>University of California, Los Angeles | How can we best measure and analyze the effects of instruction on students' learning in the major school subjects? What are the most appropriate times to measure the effects of schooling on student learning? What are the cautions which should be taken into account before any attempt to evaluate the effectiveness of programs primarily on the basis on standardized achievement data, especially when the number of individual implementations is large and the actual conditions under which the implementations took place are not well documented? |
| Summer Drop-off and The Effectiveness of Compensatory Instruction<br>Paul T. Hill<br>The Rand Corporation | What has the era of compensatory education program development contributed to knowledge about achievement in the basic school subjects in urban schools? Where is the evidence? What, if anything, does the evidence indicate about methods for improving basic skills achievement? What, if any, recommendations can be made to school district planners on the basis of existing evidence? |

| | |
|---|---|
| Instructional Ingredients for the Development of Beginning Reading Competence<br>Isabel Beck<br>Co-Director<br>Learning Research and Development Center<br>University of Pittsburgh | Much research, program development, and implementation of efforts to improve achievement in basic school subjects has been concentrated in the area of reading. What approaches to instruction in reading have been successful in increasing achievement? Is there evidence that certain approaches are best suited to the needs of particular populations? Do these effects generalize to other areas of school learning, such as mathematics, social studies, and science? |
| A Discussion of The Literature and Issues Related to Effective Schooling<br>Ronald Edmonds<br>Director<br>Center for Urban Studies<br>Graduate School of Education<br>Harvard University | Are there schools that have demonstrated a higher degree of effectiveness in the delivery of instruction in the basic school subjects than others serving similar student populations (in terms of socioeconomic backgrounds, family characteristics, minority populations, etc.)? What characteristics distinguish these schools from less successful schools in similar situations? What is the evidence that the explanatory characteristics have been correctly identified, and how strong is that evidence? |
| The Educational Promise of Cultural Pluralism<br>Vera John-Steiner and Larry Smith<br>Department of Educational Foundations<br>College of Education<br>The University of New Mexico | How can we approach problems of teaching and learning in urban schools so that the racial and cultural diversity of the school population is recognized, respected, and utilized constructively, to the extent possible? How do we differentiate between basic academic skills, which all students need to acquire for successful participation in our hetergeneous society, and curriculum decisions which can and should be tailored to the needs and interests of different sub-cultural groups? Do students benefit from participation in racially and culturally hetero-geneous classrooms, or perhaps from certain kinds of heterogeneous instructional settings but not others? What is known about these issues, and how much consensus is there about the cultural values on which schooling must be based? |

| | |
|---|---|
| New Perspectives on School District Research and Evaluation<br>Catherine Lyon<br>Center for the Study of Evaluation<br>University of California, Los Angeles | What is the role of research and development processes in improvement of instruction and learning in basic school subjects in large urban systems? In what form are these processes being applied to the teaching and learning process in urban schools? What is the evidence and how solid are the indications that use of these proceses has resulted in improved student achievement? |
| Effective Teaching and Learning in Urban Schools<br>Jane A. Stallings and Shirley W. Hentzell<br>Stanford Research Institute | Looking specifically at the interaction of student, teacher, curricular and school organization characteristics, what instructional conditions encourage achievement in basic school subjects? What evidence is there, and how good is it? How are the effects of instructional conditions on student achievement measured? On the basis of existing evidence and trends, what recommendations can be made for improving students' instructional environments? |
| Mathematics and The Urban Child<br>Marilynn Suydam<br>Center for Science, Mathematics, and Environmental Education<br>The Ohio State University | Mathematics is a school subject which is generally considered basic, insofar as mathematical skills are required for successful adult functioning in our complex society. What evidence is there to indicate which approaches to instruction in mathematics have been successful in increasing achievement? Is there evidence that certain approaches are best suited to the needs of particular populations? Do these effects generalize to other areas of school learning, such as reading, social studies, and science? |
| Basic Skills in Urban Schools: A View From The Bilingual Classroom<br>Concepcion Valadez<br>Graduate School of Education<br>University of California, Los Angeles | Since the second largest minority population served by many urban school districts is a bilingual population, what is the current state of the evidence about the effects of programs developed especially for bilingual students? What, if anything, does the evidence indicate about the effects of such programs on basic skills achievement? |

School-Community Relations and The Urban School
Dean Bowles
Director
Home-School-Community Project
Wisconsin Research and Development Center for Cognitive Learning

What do we know or what can we learn about the influence of parental and community involvement in schooling on student achievement? How does parental and community involvement affect the teaching-learning process? If information is not available to answer these questions on even a tentative basis, what types of research are recommended to study this aspect of students' lives more effectively?

Frank Sobol
Basic Skills Group
National Institute of Education

Are there research and development products which have contributed to improved instruction and increased student achievement in basic school subjects in large urban school systems? What is the evident and how solid are the indications that use of these products has resulted in improved student achivement?

A Summary of The Conference Findings
Edmund W. Gordon
Director
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In light of the evidence produced by examination of these issues, what concrete recommendations can be made to school districts concerning the improvement of instruction and learning in basic school subjects? In light of the same evidence, what research and development agenda should be the focus of future study and program development?

Dr. Francis S. Chase,
Director of Urban Education
Dallas, Texas

Keynote Speaker for Conference Banquet:
"Promising Developments in Urban Education"

--Harriet Doss Willis
Director
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# Summer Drop-Off and the Effectiveness Of Compensatory Instruction

**Paul T. Hill**
**The Rand Corporation**

In recent years no discussion of the effects of compensatory instruction has been complete without a reference to the summer drop-off phenomenon. The knowledge that disadvantaged students fall farther behind national norms during the summer months has greatly complicated efforts to understand how much compensatory education students are learning and how much good compensatory programs are doing.

Many researchers and policymakers have taken the evidence of summer drop-off to mean that compensatory instructional programs are not doing children any good. The summer drop-off phenomenon thus has important implications for the future of compensatory education. My purpose in this paper is to explain the meaning and significance of summer drop-off. I shall argue that the drop-off is more apparent than real--that is, that compensatory education students do not suffer any absolute decline in their academic skills during the summer.

---

*Paul T. Hill is Director of the Center for Educational Finance and Governance, The Rand Corporation.*

After a brief general introduction, the paper will treat the following: (1) evidence for the existence of summer drop-off; (2) different interpretations of the phenomenon; (3) the significance of the different interpretations; and (4) implications for policy and research.

## I. INTRODUCTION

Early efforts to evaluate compensatory instruction paid little or no attention to summer drop-off; they were concerned with estimating students' gains during the school year. Because the early studies were generally negative, no one thought to ask whether disadvantaged students lost their school-year gain during the summer. More recent studies, however, have produced far more favorable estimates of the amount that compensatory eduation students learn during the school year. The series of studies conducted by SRI's Education Policy Research Center (Thomas & Pelavin (1966); Pelavin & David (1977); and David and Pelavin (1977)), has repeatedly shown that students who receive compensatory reading and mathematics instruction learn at or above the "normal" rate of 1.0 months per month of instruction during the school year. The Study of Instructional Dimensions, conducted as part of the NIE Compensatory Education Study, found even greater rates of gain during the school year for students in selected "well implemented" Title I programs. Early results of the multi-year USOE/SDC Sustaining Effects Study appear to be consistent with this pattern.

Though none of these studies showed compensatory instruction to be working uniformly well all across the country, they do indicate that many disadvantaged students are learning at a desirable rate during the school year. On those grounds (especially in light of the very discouraging results of early Title I evaluations), compensatory instruction might be at least tentatively called a success. But researchers, ever cautious, have found good reasons to continue withholding judgment. Thomas and Pelavin (1976), for example found that compensatory education students, in the

aggregate were still not keeping pace with the norms for children their age. Though Title I students had attained normal rates of growth during the school year, the gaps between their performance and that of students at the 50th percentile continued to widen as the children got older. Thomas and Pelavin reasoned that the widening gap could be caused by a "summer loss." In a later study, Pelavin and David (1977) demonstrated that compensatory education students' grade equivalent scores declined over the summer. They concluded that "large increases in school year achievement are not sustained even until the next fall."

As a result of these and similar findings, discussions about the effectiveness of compensatory instruction have become both complicated and confused. Some have argued that the high rates of gain during the school year are proof that students are benefiting; they regard the recent improvements in student performance on the basic literary tests administered by the National Assessment of Educational progress as corroborating evidence that overrides any questions about summer drop-off. On the other side, some agree with David and Pelavin (1977) that "evaluations should measure program effectiveness over a period of time longer than the school year," and that, due to summer drop-off, compensatory instruction cannot be judged a success.

The latter view has had a definite impact on policymakers' views of the validity of the national compensatory education strategy. During preparations for re-authorization of Title I with 1978 Elementary and Secondary Education Amendments, several high-level HEW officials cited the summer drop-off findings as grounds for thinking that current compensatory education programs are "doing no good." Though such doubts are unlikely to cause the federal government to decrease its funding for elementary and secondary education, they are eroding support for the current programs of special educational services for individual educationally disadvantaged children. Alternative federal strategies, based on less precisely targeted

aid for the general improvement of instruction in selected school buildings, are gaining strong support among high officials in USOE and other parts of HEW.

## II. EVIDENCE FOR THE SUMMER DROP-OFF

The best evidence is provided by two of the SRI reports cited above. Pelavin and David (1977), and David and Pelavin (1977) used longitudinal files of test scores obtained from a number of compensatory education programs to compare Title I students' gains in grade-equivalent scores for two time periods: the standard academic year and the calendar year between entry into one grade and entry into the next. Gains for the academic year were computed as the difference in grade equivalent scores between fall and spring testing. Gains for the calendar year were computed as the difference between fall test scores in one year and fall test scores in the succeeding year. Table 1, taken from Pelavin and David, gives a representative example of their results. Table 2 (also from Pelavin and David) gives a summary of the amounts and rates of gain for the same students.

In general, compensatory education students in City M gained more than a grade-equivalent year between their entry into a grade and the beginning of the following summer vacation. Their calendar-year gains, however, were much smaller. Most gained less than a grade-equivalent year in a calendar year. The difference between the larger school year gain and the smaller calendar year gain is what Pelavin and David called the summer drop-off. For students in City M, the summer drop-off was at least 2.9 grade-equivalent months (5th grade) and as great as 5.1 grade-equivalent months (3rd grade).

Table 1

CITY M MEANS AND STANDARD DEVIATIONS IN GRADE EQUIVALENTS FOR THE GATES-MacGINITIES READING TESTS BY GRADE FOR PUBLIC SCHOOL STUDENTS WITH AT LEAST THREE CONSECUTIVE TEST POINTS

| Grade | N | Fall | Spring | Fall |
|---|---|---|---|---|
| 3 | 272 | 2.23<br>(1.04) | 3.29<br>(1.42) | 2.78<br>(0.96) |
| 4 | 931 | 2.65<br>(0.83) | 3.58<br>(1.19) | 3.18<br>(0.96) |
| 5 | 980 | 3.26<br>(0.99) | 4.30<br>(1.38) | 4.01<br>(1.30) |
| 6 | 316 | 3.85<br>(1.2 ) | 4.78<br>(1.47) | 4.42<br>(1.32) |
| 7 | 128 | 4.35<br>(1.24) | 5.25<br>(1.68) | 4.95<br>(1.41) |

Table 2

CITY M ACHIEVEMENT GAINS AND MONTHLY RATES BASED ON TWO DIFFERENT PERIODS OF TIME FOR PUBLIC SCHOOL STUDENTS WITH AT LEAST THREE CONSECUTIVE TEST POINTS (Grade-Equivalent Metric)

| | | Achivement in Grade-Equivalent Months* | | Monthly Achievement Rates | |
|---|---|---|---|---|---|
| | | I | II | III | IV |
| Grade | N | Fall to Spring | Fall to Fall | Fall to Spring (I ÷ 7) | Fall to Fall (II ÷ 10) |
| 3 | 272 | 10.6 | 5.5 | 1.5 | 0.6 |
| 4 | 931 | 9.3 | 5.3 | 1.3 | 0.5 |
| 5 | 980 | 10.4 | 7.5 | 1.5 | 0.8 |
| 6 | 316 | 9.3 | 5.7 | 1.3 | 0.6 |
| 7 | 128 | 9.0 | 6.0 | 1.3 | 0.6 |

* The achievement is based on the means in Table 1.

Pelavin and David repeated the analysis for several cities' compensatory education programs, and most, but not all, showed compensatory education students to be farther behind at the end of the summer than at the beginning.* They concluded that the drop-off phenomenon is common, if not universal, among compensatory education students.

## III. INTERPRETATION OF SUMMER DROP-OFF

The data in Tables 1 and 2 appear to demonstrate that compensatory education students know less when they report for school in the fall than when they leave in the spring. Pelavin (1977) has drawn that conclusion expressly, writing that students suffer an "achievement loss" and that during the summer, skills are "forgotten."

Within the past few months, however, new evidence has called the "forgetting" interpretation into question. The best recent research has shown that many compensatory education students are not suffering performance declines during the summer. Two studies of achievement during the 1976-77 and 1977-78 school years (NIE's Instructional Dimensions Study and USOE's Study of the Sustaining Effects of Compensatory Education) have

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* The gap between compensatory education students and the national norms can widen during the summer even if compensatory students' skills do not decline. If the norm group's average performance rises over an interval of time (say, the summer), a given student's performance must rise proportionately if he is to maintain his relative position. A student whose performance does not rise will receive a lower score on any norm-referenced test (as, of course, will those whose performance has either fallen or risen less rapidly than the norm group's). From norm-referenced scores alone, it is impossible to know whether a particular student's performance has declined, risen, or stayed the same. Since most norm-referenced tests assume some growth during the summer, students whose performance is constant can indeed receive lower norm-referenced scores. In fact, as Stenner et al. (Note 1) have demonstrated, many tests assume that students' performance will increase faster during the summer than during the school year. Thus, substantial summer losses in norm-referenced scores can occur for students whose performance has not declined.

produced fall-spring-fall comparisons for longitudinal samples of compensatory education students. These studies are important because they were both expressly designed to trace individual children's achievement growth over the summer months and to provide data on students' absolute achievement levels and on their norm-references scores. Unlike earlier studies, which had to rely on data collected by school districts and state education agencies, these studies obtained their own test scores under very rigorous control. The OE Sustaining Effects Study, in addition, tested a very large nationally representative sample of compensatory education students. Tables 3 and 4 are derived from the Sustaining Effects Study's first public report on summer drop-off.

Table 3

MEAN READING AND MATH SCORES FOR FIVE COHORTS OF STUDENTS OVER THREE TEST ADMINISTRATIONS

| Cohort Grades | October 1976 | May 1977 | October 1977 |
|---|---|---|---|
| | Reading | | |
| 1-2 | 331 | 397 | 407 |
| 2-3 | 375 | 419 | 425 |
| 3-4 | 411 | 450 | 449 |
| 4-5 | 440 | 472 | 476 |
| 5-6 | 461 | 488 | 494 |
| | Math | | |
| 1-2 | 312 | 374 | 380 |
| 2-3 | 353 | 410 | 412 |
| 3-4 | 399 | 459 | 455 |
| 4-5 | 448 | 501 | 498 |
| 5-6 | 477 | 526 | 529 |

(Adapted from Hoepfner, 1978)

Table 4

SPRING-FALL CHANGES IN MEAN READING AND MATH SCORES FOR FIVE COHORTS OF STUDENTS

| Cohort Grades | Reading | Mathematics |
|---|---|---|
| 1-2 | 10 | 6 |
| 2-3 | 6 | 2 |
| 3-4 | -1 | -4 |
| 4-5 | 4 | -3 |
| 5-6 | 6 | 3 |

(Adapted from Hoepfner, 1978)

Table 5 provides similar data from the NIE study.

Table 5

MEAN ACHIEVEMENT GAIN SCORES FOR COMPENSATORY EDUCATION STUDENTS IN THE NIE INSTRUCTIONAL DIMENSIONS STUDY
(In Expanded Standard Scores)

| | N | Fall-to-Spring Gain | Spring-to-Fall Gain | Fall-to-Fall Gain |
|---|---|---|---|---|
| Grade 1 Reading | 395 | 64 | 0 | 64 |
| Grade 1 Math | 143 | 37 | 2 | 39 |
| Grade 3 Reading | 565 | 43 | 9 | 52 |
| Grade 1 Math | 314 | 64 | 0 | 64 |

(Adapted from Frechtling and Hammond, 1978)

The two most recent studies therefore present a very different picture of the summer drop-off phenomenon from that inferred from Tables 1 and 2. Disadvantaged students' achievement scores change very little during the summer: A few changes are positive but all the changes are very small. The best conclusion from these data is that children's achievement neither increases nor decreases during the summer.

Two very different interpretations of the summer drop-off phenomenon are therefore possible. The first, illustrated by Figure 1, can be called "forgetting." Compensatory education students know less in the fall than in the previous spring. The second, illustrated in Figure 2, can be called "no growth in summer." Compensatory education students know as much in the fall as in the previous spring. Under either interpretation, 50th percentile students are assumed to learn at a steady rate year-round. Compensatory education students fall farther behind 50th percentile students each year, but they fall back more dramatically under the "forgetting" interpretation. The crucial difference between the two is that the "forgetting" interpretation says that a great part of what students learn during the school year is lost in the summer.*

The "forgetting" and "no-summer gain" interpretations have very different implications for judgments about the value of compensatory instruction. To demonstrate those differences, it is important to understand the standards of judgment now being used in policy discussions:

- The first, more modest, standard is whether the program is doing any good for individual students. If students are learning more than they would without compensatory instruction, that standard is met.

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* Practicing educators who are familiar with all children's return to the state of nature during the summer months may find it hard to believe that children do not truly "forget." It is important to remember that most fall testing takes place in October or later, long after the readjustment to school has taken place. The "forgetting" interpretation thus assumes a true loss of skills, not just a short-lived rustiness in the first week of school.

> The second, more ambitious, standard is whether the program is bringing students up to the average achievement levels of children their age. This standard is met only if the achievement levels of compensatory education students are converging on the national norms.**

The "forgetting model strongly implies that compensatory instruction meets neither of these standards. As Thomas has argued, the large school-year gains resulting from compensatory instruction are offset by summer losses, to the effect that students will have learned no more after several years of compensatory instruction than they would have done without it. Thus, the investment--of public money and children's time--in compensatory instruction is wasted.

In contrast, the "no-summer gain" model implies that disadvantaged children make real gains during the school year. Unlike 50th percentile students, whose skills grow even when they are out of school, disadvantaged students learn only when they are receiving formal instruction. Compensatory programs that increase students' learning rates when they are in school are thus vitally important.

The NIE study results provide very strong evidence in favor of the "no summer gain" model. As Table 6 shows, students whose initial test scores were at or above the national norm make substantial gains during the summer months, but compensatory education students do not.

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** A third standard, suggested by Thomas and Pelavin (1977) is whether compensatory instruction is improving the life chances of disadvantaged students. That standard cannot be given a simple quantitative meaning, since the linkage between achievement levels and life chances is unknown. If one assumes a close relationship between achievement levels and life chances, then the first and third standards are equivalent; if one assumes that life chances are enhanced only by achievement at or above the national norms, then compensatory instruction must meet the second standard.

FIGURE 1: FORGETTING

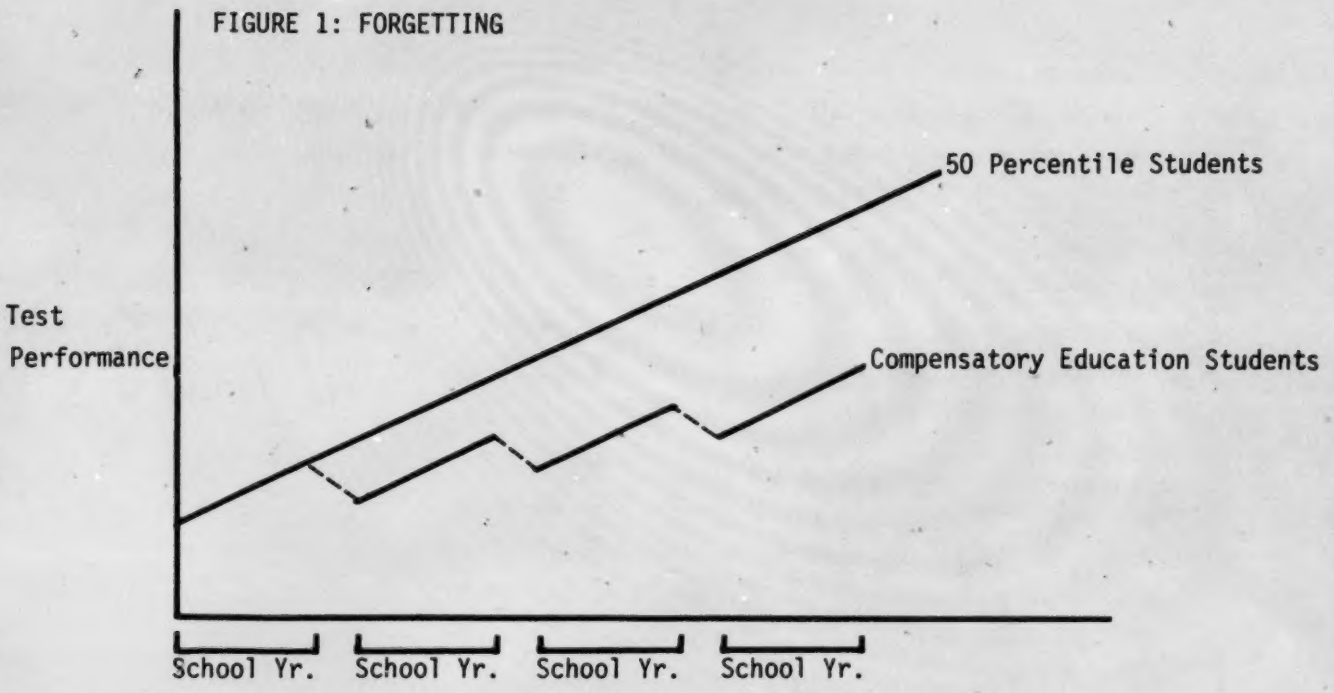


FIGURE 2: NO GROWTH IN SUMMER

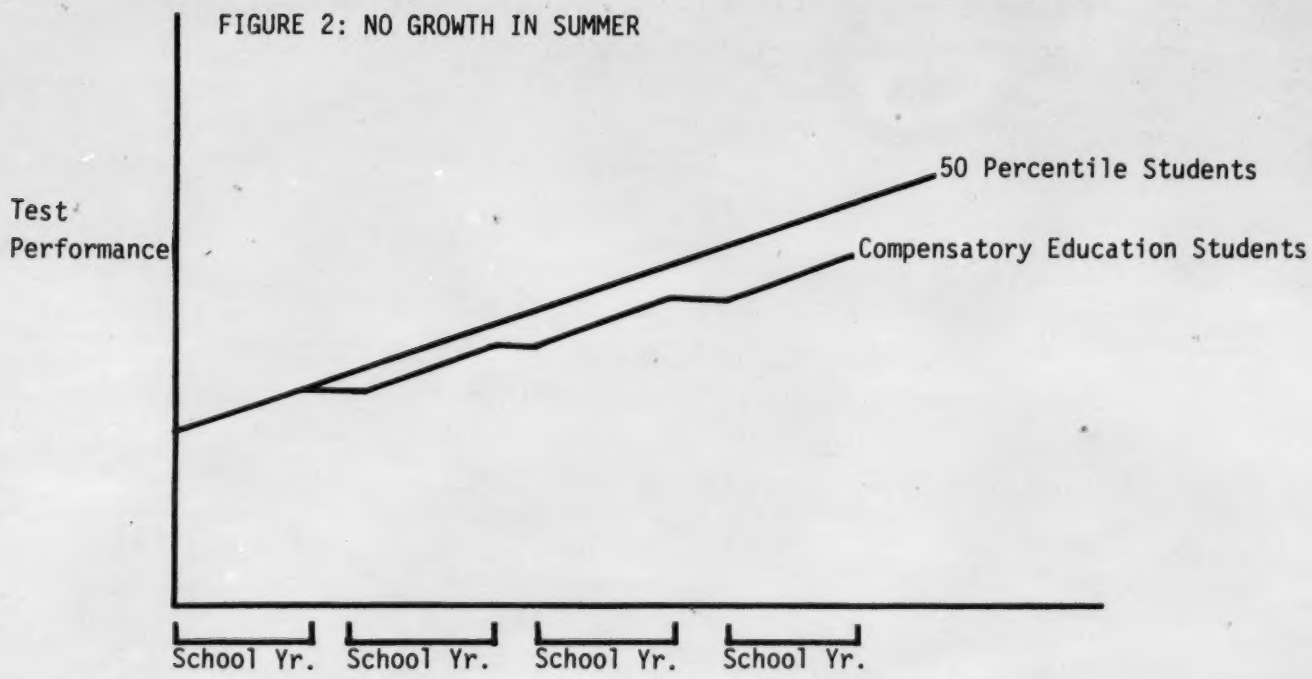

Table 6

COMPARISON OF GAIN SCORES OF COMPENSATORY EDUCATION STUDENTS AND STUDENT WHOSE PRETEST SCORES WERE AT OR ABOVE THE NATIONAL NORMS

(In Expanded Standard Scores)

| | N | Fall to Spring Gain | Spring to Fall Gain | Fall to Fall Gain |
|---|---|---|---|---|
| Grade 1 Reading | | | | |
| Compensatory Ed. Students | 344 | 69 | 0 | 69 |
| Others | 296 | 56 | 10 | 66 |
| Grade 1 Math | | | | |
| Compensatory Ed. Students | 97 | 43 | 8 | 52 |
| Others | 435 | 56 | 10 | 66 |
| Grade 3 Reading | | | | |
| Compensatory Ed. Students | 512 | 44 | 8 | 52 |
| Others | 305 | 36 | 21 | 57 |
| Grade 3 Math | | | | |
| Compensatory Ed. Students | 306 | 64 | -1 | 63 |
| Others | 178 | 62 | 7 | 69 |

(Source: Frechtling and Hammond, 1978)

On this evidence, compensatory instruction appears to meet the first standard, and not the second. It is thus doing some good, but not, according to the highly desirable second standard, doing enough good to be judged an unqualified success.

The recent scholarly and political discussion of summer drop-off has not recognized the difference between the "forgetting" and "no-summer gain" interpretations. Most, but not all, participants have implicitly adopted the "forgetting" model because it was intuitively consistent with SRI's data. (It also seemed to be the only explanation for the ever widening gap between the achievement levels of compensatory education students and the national norms. An inspection of Figures 1 and 2, however, will demonstrate

that the "no-summer gain" model also explains the gap. If the term "summer drop-off" is to retain any meaning, it should be redefined to refer to this relative, not absolute, decline in disadvantaged students' learning.)

## IV. IMPLICATIONS FOR COMPENSATORY EDUCATION POLICY AND RESEARCH

This section reviews the implications of the evidence about summer drop-off for three questions: (1) whether to continue supporting compensatory instruction; (2) how to increase the gains children derive from compensatory instruction; and (3) what may be the limits of public programs of compensatory instruction.

### Whether to Continue Supporting Compensatory Instruction

A loose restatement of the conclusions of the preceding section is that compensatory instruction is doing some good, but not enough to make a profound difference in the educational performance of disadvantaged students. Whether support for compensatory instruction should be continued depends first on the importance of the objective of raising the achievement levels of disadvantaged children, and second on the existence of more promising alternatives.

About the first, there seems to be little doubt about the strength of the national commitment to improving education for the disadvantaged. ESEA Title I, Follow Through, and state compensatory education programs have flourished through years of criticism and many discouraging evaluations. Congress has just reauthorized Title I, and funded it at more than three times the level appropriated in 1965. Those actions reflect the strength of the political coalitions behind Title I at least as much as any of the program's technical successes. But no amount of cynicism about the legislative process can refute the conclusion that Congress supports Title I because an imperfect effort on behalf of disadvantaged children is better than none at all.

If there are more promising alternative ways of improving the achievement of disadvantaged children they are not widely known. Years of research on instructional processes has produced some progress (see, for example, Resnik, Note 2) but most of it has refined compensatory instruction rather than built revolutionary alternatives to it. California's Early Childhood Education program (ECE) embodies an alternative approach, a general restructuring of classroom processes for all students, in hopes that disadvantaged children will benefit along with the others. This alternative is more congenial to the normal organization of schooling than the special services model normally followed in compensatory education, and it might help many students not now eligible under Title I and similar programs. There is, however, little evidence about its specific effectiveness for disadvantaged children. An evaluation of ECE now being initiated by the State of California will help determine whether classroom restructuring is a serious alternative to compensatory instruction.

## Possible Ways of Increasing the Gains Children Derive from Compensatory Instruction

Aside from technical refinements in the quality of compensatory instruction, the way to help disadvantaged children learn more is to increase the rates of learning during the summer. If children gain only when they are receiving instruction, an obvious course is to give them instruction year round. Pelavin (1977) and other proponents of the "forgetting" interpretation are strongly in favor of summer programs; the "no-summer gain" interpretation leads (albeit less urgently) to the same prescription. There are, unfortunately, some serious problems with the summer school idea.

One is that existing summer programs do not appear to be effective antidotes to summer drop-off. Table 7 presents data from the Sustaining Effects Study on the school-year and summer growth of disadvantaged students who attended summer school. Though many students made small gains during the summer, no

cohort (4-5 in reading) came anywhere near to learning one-third as much from summer school as from regular school-year instruction. The NIE study's results are virtually identical to these.

Such data confirm the common belief that existing summer school programs do not have strong effects on children's test performance. This may reflect the fact that existing summer programs are not sharply focused on basic skills instruction. If summer programs were designed as exact continuations of school-year instruction, the results might be more positive.

Table 7

RATIO OF SUMMER TO SCHOOL YEAR GAINS FOR DISADVANTAGED STUDENTS WHO ATTENDED SUMMER SCHOOL

| Cohort | Reading | Math |
|---|---|---|
| 1-2 | .15 | .18 |
| 2-3 | .14 | .00 |
| 3-4 | .00 | .00 |
| 4-5 | .23 | .06 |
| 5-6 | .30 | .10 |

(adapted from Hoepfner, 1978)

Cost is another problem. Few school districts can afford large summer programs, and Title I does not provide additional money for summer operations. School districts can elect to use Title I funds for summer instruction, but must reduce their regular school-year effort to do so. Under the "forgetting" interpretation, it may be worthwhile to reduce school-year instruction in order to support summer programs, because the school-year gains can be seen as ephemeral. Under the "no-summer gains"

interpretation, however, summer instruction is a poor trade for the existing school-year programs: reducing the level of school-year instruction risks known real gains for unpredictable effects of summer instruction. A major emphasis on summer programs should therefore await new funding.

The third problem with summer programs is ensuring that the right students participate. There is no selective compulsory summer attendance law for low-achieving children, and disadvantaged groups are not generally in the habit of sending their children to summer school. At present, the students most likely to receive summer schooling are the economically and educationally advantaged, whose parents pay for special training in areas of personal interest, and children of working mothers who can afford an expensive form of day care. Public summer schools would be attractive to many members of these groups. Low-income families, not now in the habit of using summer schools, might be slow to respond to the opportunity. To be successful, a summer school program must cope with these facts. To my knowledge nobody has thought much about how to guarantee that the children most in need of summer instruction would receive it.

## On the Limits of Public Programs

As we learn more about the summer drop-off phenomenon, we may discover the limits of the ability of public programs to overcome the achievement problems of disadvantaged children. Evidence from the most positive recent studies indicate that disadvantaged children make achievement gains only where they are receiving formal instruction. Unlike other children, they do not gain a "momentum" from their school-year experiences to carry them through the summer. Continual exposure to instruction is therefore very important; when that is not possible, either because of lack of funds or because the children themselves need relief from the regimen of schooling, the children apparently stop learning. Public programs may therefore be unable to overcome the problem of summer drop-off entirely. Until we understand how summer drop-off occurs, it will be impossible to know how, or whether, it can be combatted.

The most plausible explanations for the phenomenon concern either the children's non-school environment or their own personal aptitudes for learning. One possible explanation is that the non-school environment of disadvantaged children is not conducive to learning--that is, that unlike more advantaged children, they are not stimulated to practice their reading and mathematics skills at home or at play. A second possible explanation is that low-achieving children have high thresholds for responding to academic information: intense formal instruction can get through to them, but other less intense learning situations cannot.

Neither explanation appears to fit all the facts. For example, high-achieving children in Title I schools apparently do not suffer a summer drop-off; those children live in the same neighborhood and thus experience much the same out-of-school environment, as the students whose academic skills do not grow during the summer. It seems clear, however, that the explanation for summer drop-off lies somewhere outside the children's schooling experience.

Developing an understanding of summer drop-off will require a mode of research that social scientists have come to label as dangerous. An examination of children's habits, attitudes, home environments, and use of leisure time will expose researchers to the accusation that they are trying to blame the deficiencies of the educational system on the victims of inadequate schooling. Such research is, however, the only way to understand the summer drop-off problem. Without it we can neither understand the limits of public policy or maximize the effectiveness of compensatory instruction. If we do not pursue these questions, only the children stand to lose.

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